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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/284,160	10/25/1999	AHARON MEIR EYAL	U012190-3	1964

7590 06/04/2004  
LADAS & PARRY  
26 WEST 61ST STREET  
NEW YORK, NY 10023

EXAMINER

OH, TAYLOR V

ART UNIT	PAPER NUMBER
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1625

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/284,160

**Applicant(s)**

EYAL ET AL.

**Examiner**

Taylor Victor Oh

**Art Unit**

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 35-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 35-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/8/1999</u> . | 6) <input type="checkbox"/> Other: _____  |

The previous Office Action dated on 6/30/2003 has been withdrawn.

The new Office Action is based on the preliminary amendment filed on 11/03/2003.

**The Status of Claims:**

Claims 35-53 are pending.

Claims 35-53 have been rejected.

**DETAILED ACTION**

1. Claims 35-53 are under consideration in this Office Action.

**Priority**

2. Acknowledgment is made of applicants' claim for foreign priority under 35 U.S.C. 119 (a)-(d).

**Drawings**

3. There are no drawings filed on 4/25/2003.

***Claim Rejections - 35 USC § 103***

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

*1. Determining the scope and contents of the prior art*

7. Claims 35-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baniel et al (U.S. 5,510,526) in view of King et al (U.S. 5,132,456).

Baniel et al discloses a process for the recovery of lactic acid, from a lactate solution composed of sodium lactate, calcium lactate or potassium lactate (see col. 11 , lines 33-34), from a fermentation broth above a pH of 4.5 (see col. 5 , lines 63-64) by using a long-chain trialkyl amine in the presence of carbon dioxide by way of extraction (see col. 3 , lines 39-44) during which carbon dioxide

may be added (see col. 6 ,line 59). For example , an extractant comprising tridodecylamine and butanol is contacted with 30 % by weight aqueous lactic acid to produce 6.9 % by weight lactic acid in the organic phase (see col. 11 , Ex. 3).

In the process the organic phase obtained from the primary extraction is further subjected to a separation process such as back extraction, vaporization (see col. 4 , lines 60-65) to recover 97 % by weight of lactic acid from the original mixture (see col. 11 , lines 8-9); the solvent can be used with water for the purpose of diluting viscous trialkyl amines or enhancing the extraction (see col. 4 , lines 42-46). In addition, the depleted extractant can be replenished with butanol ,and recycled for another extraction (see col. 11, lines 13-14). Also, the reference teaches that it is plausible to recover the lactic acid by acidifying the fermentation broth with sulfuric acid; as a result, a sulfate salt is formed (see col. 1 , lines 55-59).

*2. Ascertaining the differences between the prior art and the claims at issue*

However, the instant invention differs from Baniel et al in that the ratio between free lactic acid and lactate salt is mentioned; the basic extractant in step (a) is recycled from step (d).

*3. Resolving the level of ordinary skill in the pertinent art*

King et al teaches a process for recovering carboxylic acids from carboxylic acid-containing aqueous streams, in which mostly the acids are present as their carboxylate salts(see col. 3 ,lines 63-67), by a liquid-phase extraction (see col. 4 ,line 2). In addition, the reference teaches that the method

of regenerating is a back extraction with low molecular weight alkylamine; the resultant alkylammonium carboxylate solution can be concentrated by evaporation of water, thereby yielding the carboxylic acid product as well as recycling trimethylamine (see col. 4 ,lines 44-55). This step will avoid the classical problem of consumption of a base and acid and a salt (see col. 4 ,lines 57-58).

Concerning the absence of teaching the ratio between free lactic acid and lactate salt. However, King et al expressly teaches the aqueous streams containing carboxylic acids and their carboxylate salts for recovering the carboxylic acids. Therefore, it is plausible that the claimed ratio range between the lactic acid and lactate can be present in the King et al reference. Moreover, the limitation of a process with respect to ranges of pH, time , ratio and concentration does not impart patentability to a process when such values are those which would be determined by one of ordinary skill in the art in achieving optimum operation of the process. For examples, ratio and concentration are well understood by those of ordinary skill in the art to be result-effective variables, especially when attempting to control selectivity of a chemical process.

Baniel et al does teach the process for the recovery of lactic acid, from a lactate solution composed of sodium lactate, calcium lactate or potassium lactate from a fermentation broth above a pH of 4.5 by using a long-chain trialkyl amine in the presence of carbon dioxide by way of extraction. Similarly, King et al expressly teaches the process for recovering carboxylic acids from carboxylic acid-containing aqueous streams by the liquid-phase extraction; furthermore, recycling the basic trimethylamine extractant (see col. 4 ,lines 44-55) will avoid the classical problem of consumption of a base and acid and a salt (see col. 4

,lines 57-58). Both prior art references have commonly shared the recovery of lactic acid from the mixture of carboxylic acids and carboxylates, whereas .

*4. Considering objective evidence present in the application indicating obviousness or nonobviousness*

Therefore, it would have been obvious to the skilled artisan in the art to have motivated to incorporate King et al recycling the basic trimethylamine extractant (see col. 4 ,lines 44-55) into the Baniel et al's process in order to avoid the classical problem of consumption of the base and acid and the salt. This is because the skilled artisan in the art would expect the incorporation of King's et al recycling the basic trimethylamine extractant into Baniel et al process to reduce the classical problem of consumption of the base and acid and the salt .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached from 8:30-5:00.

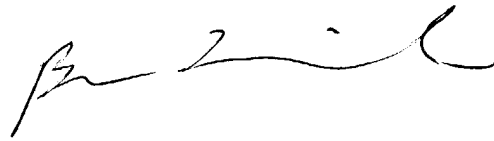
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mckane can be reached on 571-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1625

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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